

# Claims

- [c1] What is claimed is:
- 1.A wire feeder comprising:  
an output connectable to a gun assembly; and  
a controller configured to automatically determine a type  
of gun assembly connected to the output.
  - [c2] 2.The wire feeder of claim 1 further comprising a motor  
assembly configured to deliver a consumable electrode  
to a weld when the gun assembly is activated.
  - [c3] 3.The wire feeder of claim 2 wherein the controller is  
further configured to determine gun assembly type  
based on an impedance of a motor assembly in the gun  
when the gun assembly is first activated.
  - [c4] 4.The wire feeder of claim 3 wherein the controller is  
further configured to determine gun assembly type when  
a trigger of the gun assembly is depressed.
  - [c5] 5.The wire feeder of claim 3 wherein the controller is  
further configured to determine gun assembly type when  
a serial communication link is established with a power  
source or wire feeder.

- [c6] 6.The wire feeder of claim 3 wherein the controller is further configured to compare the impedance to a look-up table of impedance values to determine gun assembly type.
- [c7] 7.The wire feeder of claim 2 wherein the motor assembly is further configured to deliver a consumable electrode to the weld at a constant speed if a four-pin connector is connected to the output.
- [c8] 8.The wire feeder of claim 7 wherein the motor assembly is further configured to deliver a consumable electrode to the weld at a constant torque if a ten-pin connector of the gun assembly is connected to the output.
- [c9] 9.The wire feeder of claim 8 wherein the controller is further configured to cause a motor in the gun assembly to deliver a consumable electrode to a weld at a constant speed if a ten-pin connector of the gun assembly is connected to the output.
- [c10] 10.The wire feeder of claim 1 wherein the output is further configured to receive a connector of a MIG welding gun, a spool gun, or a push-pull welding gun.
- [c11] 11.A controller for a welding-type system, the controller configured to:  
detect an impedance of a motor assembly designed to

deliver welding wire to a weld;  
from the impedance, determine a type of load placed on  
the motor assembly; and  
based on the type of load, automatically set an output  
mode of the motor assembly.

[c12] 12.The controller of claim 11 wherein the type of load is  
indicative of a gun assembly operationally connected to  
the motor assembly.

[c13] 13.The controller of claim 11 wherein the output mode  
includes one of constant speed mode and constant  
torque mode with at least one feedback path to the mo-  
tor assembly.

[c14] 14.The controller of claim 13 further configured to set  
the output mode to the constant speed mode if the type  
of load is a spool-type gun.

[c15] 15.The controller of claim 13 further configured to set  
the output mode to the constant speed mode if the type  
of load is a push-pull type welding gun.

[c16] 16.The controller of claim 11 further configured to de-  
termine a number of pins in a connector of a welding  
gun operationally connected to a wire feeder having the  
motor assembly disposed therein.

- [c17] 17.A method of controlling operation of a wire feeder, the method comprising the steps of:  
determining configuration of pins in a connector connecting a welding gun assembly to a wire feeder; and  
from the configuration, automatically setting an output mode of a motor assembly in the wire feeder.
- [c18] 18.The method of claim 17 further comprising the step of determining an impedance on a gun motor assembly disposed in the welding gun assembly and setting an output mode of the gun motor assembly based on the impedance.
- [c19] 19.The method of claim 18 wherein the output mode of the gun motor assembly includes a constant speed mode if the impedance matches that of a spool gun.
- [c20] 20.The method of claim 18 further comprising the step of setting the output mode of the motor assembly to a constant torque mode if the configuration of pins corresponds to a push-pull welding gun assembly.
- [c21] 21.The method of claim 20 further comprising the step of setting the output mode of the gun motor assembly to a constant speed mode if the configuration of pins corresponds to a push-pull welding gun assembly.
- [c22] 22.A wire feeder comprising:

means for determining a type of welding gun connected to deliver welding wire to a weld; and  
means for automatically setting an output mode of a motor drive assembly based on the type of welding gun.